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HABITS OF THE BLACK-BELLIED PLOVER (*CHARADRIUS SQUATAROLA*) IN MASSACHUSETTS.*

BY GEORGE H. MACKAY.

THIS distinguished-looking bird, the largest of the Plovers, is nearly cosmopolitan. It ranges in the Western Hemisphere as far south as Brazil, New Grenada and Peru, with a corresponding limit in the Eastern Hemisphere in Australia and New Guinea. It is said to breed on the marshes above forest growth at the delta of the Lena River in northern Siberia, in the valley of Pechora on Taimyr Peninsula, northern Russia, on the banks of the Anderson River, and on Melville Peninsula in Alaska (Seebohm's Plovers, p. 103; Baird, Brewer, and Ridgway, N. A. Birds, Vol. I, p. 132).

In summer plumage the adult male is black from around the base of the bill to the eyes, fore neck, and under parts of body; abdomen to end of tail white; axillars black; forehead and fore half of crown creamy white to white; a broad white line or band running from the sides of the head over the eyes, down the sides of the neck, and enlarging and encroaching into the black on the breast where the neck joins the body, sharply defined in front by the black, but blending into the plumage of the neck and back (this white line or band is the most prominent feature of their plumage as seen from a distance); sides of the neck and rump ashy gray; back and hind half of crown whitish, covered with small irregular spots of brownish black; upper tail-coverts barred with brownish black. The legs and bill are black; small hind toe. The adult female is rather smaller than the male; the plumage of the top of the head, back of the neck, and back, is duller with more brownish, not being so defined as in the male; the fore neck, breast and lower parts, interspersed with brownish to black, and white, feathers; abdomen white. They never have the clear crow-black fore neck and breast of the males, nor is the white band or line of the forehead and sides of the neck so prominent. As a whole their plumage lacks that clearly defined

* Read before the Nuttall Ornithological Club, Dec. 7, 1891.

pattern so distinctive of the adult male. The young birds, commonly called Beetle-heads, Chuckle-heads, or Bull-heads, have the entire upper parts brownish gray-black covered with irregular spots of white and pale yellow, which last color varies in different specimens; under parts white; the fore neck and breast dull white with longitudinal, short, gray lines; axillars dusky brown to black. I have at times shot large specimens of young American Golden Plover (*C. dominicus*)—Pale-bellies as they are called—which quite closely resembled small specimens of young Black-bellied Plover (*C. squatarola*), or Beetle-head, but the dusky or blackish axillars and the presence of a hind toe in the latter will always distinguish them from the former.

It is stated, or at least implied, in most ornithological works that the plumage of the adult female is the same as the male's; it will be noticed that I have described it differently. I now desire to call attention to the universal statement current in the literature of the subject that the adults assume what is designated as the winter plumage, that is, gray above and white underneath, similar to the plumage of the young birds. I cannot but believe that such statement is an error of long standing, it being my conviction that such gray and white plumage is confined exclusively to the younger birds, and is retained by them in varying stages up to three or four years of age, or in other words until such time when they change it (never to reappear in it) for that which is known as full spring plumage. Birds with light-colored breasts without any, or with very few, black feathers, are seen to a greater or less extent every spring. I have yet to see an old bird from any locality in any season, in the gray and white plumage. Lest I may be misinterpreted, permit me to add that as these birds do not, in my opinion, reach the height of their plumage until they are three or four years old, my remarks apply only to birds of that age or over. Mr. George A. Tapley of Revere, Mass., who is a close observer and has probably shot as many of these birds as any one in Massachusetts, and whose shooting experience extends over a period of about fifty years, informs me that he has shot the old birds in full plumage on Cape Cod, Mass., on July 28, 29 and 30. He says he never saw an old bird in the gray and white plumage, but has shot old and young birds together. Mr. Charles G. Kendall, also a sportsman and a close observer, has passed the last twenty-five winters in South Caro-

lina. In reply to my inquiry asking for his experience in that State he writes me; "A few Blackbreasts always winter on the coast of South Carolina, and I see a few almost daily every winter on the marshes near my residence. There are as many full, *deep black*-breasted birds in winter as in spring or summer. I see no reason for believing that the fully adult birds ever again assume a gray plumage. . . . In the spring I have occasionally shot specimens with blotchy or mottled breasts, evidently changing to full plumage from gray."

In addition to the above I have thought it might prove interesting to have descriptions of a few individual birds to serve as illustrations. Through the kindness of Mr. William Brewster of Cambridge, Mass., I am able to refer to some examples in his collection. Specimen No. 29,626 was taken Aug. 29, 1890, at East Marshfield, Mass.; it is a male. The entire lower parts of this bird from the bill to the abdomen are coal-black with the exception of a few small white feathers interspersed. No. 19,170 was taken Sept. 3, 1888, at Monomoy Island, Cape Cod, Mass.; it is a male. This bird is black and white on the breast and would be said to have nearly arrived at full plumage. Specimen 19,171 was taken Sept. 6, 1888, at Monomoy Island; it is a male, and is black on the breast with the exception of a few white feathers. Specimen 731 (Spelman Collection) was taken on Sept. 1, 1881, at Rye Beach, N. H.; it is a female in full plumage. Specimen 730 (Spelman collection) was taken Aug. 22, 1881; it is a male. The entire lower parts from the bill to the abdomen are black and white, evenly divided. These data will, I think, be sufficient to make plain the point in question.

I have examined, also, about thirty of the younger birds (those in the gray and white plumage) in Mr. Brewster's collection; they are from Maine, Massachusetts, South Carolina, Georgia, Florida, Lower California, and San Francisco, California. Each and all have every appearance (to me) of being young and undeveloped birds. I think the reason we see and capture so many more of the gray and white plumaged birds is because they are younger and less wary than the old birds, which latter, being shy and having been over the route a number of times previously, do not stop or remain at places where they are likely to be harassed. In studying the plumage of the Black-bellied Plover,

as also of the Knot (*Tringa canutus*), a large series of specimens is imperative in order to arrive at satisfactory results, owing to the diversity of their plumage as they advance from youth to age. The Knot, too, is said to assume this gray and white form of plumage similar to that of the young birds, during the winter. I think this statement also is incorrect, but as I intend to present an article on this bird later in the year, I will defer until that time what I wish to say regarding its habits and plumage.

The Black-bellied Plover is in a great degree a *tide* bird, seeking a large portion of its food on those extensive sand flats left by the receding waters, which may be adjacent to marshes where the grass is short, and which are interspersed with barren places where there is no grass, also to uplands and fields where the grass is scanty or closely fed down by sheep or cattle. It is to such places that they like to resort when driven from their feeding grounds on the sand flats by the incoming tide. They also frequent at such times the crest and dry sand of the beaches and shoals; here they remain until the tide has sufficiently ebbed to permit them again to return to feed. Their food consists largely of minute shell-fish and marine insects. They feed also on the larva of one of the cut-worms (Noctuidæ) which they obtain on the marshes; sometimes after being shot on the Dennis marshes, Cape Cod, Massachusetts, they will have some of them still in their throats. They also eat the large whitish maritime grasshopper (*Ædipoda maritima*). When on the flats they usually seek their food near the edge of the water. They also frequent such flats during the night as well as in the daytime. As there is more ground on Cape Cod suitable for this bird's requirements than in the rest of New England there would consequently more of them collect in this locality than elsewhere. In the neighborhood of the islands of Tuckernuck and Muskeget there are also extensive sand flats at low tide, and here also they used to be abundant many years ago. In the neighborhood of these islands, as also on Nantucket, they have been known to remain until the end of November. On Cape Cod their favorite resorts were, on the south side, the Dennis marshes, the sand flats outside Chatham, and the marshes below Great Island, near Hyannis, also Wellfleet on the north side. Here in former years large numbers, as many as a thousand at one time, frequented the Dennis marshes and the flats outside, often mingling and stand-

ing and feeding on the marshes for hours together, with the Knots or Redbreasts (*Tringa canutus*), Turnstones (*Arenaria interpres*), and Red-backed Sandpipers (*Tringa alpina pacifica*). Some of the flocks were composed of these four kinds of birds, it being no very uncommon thing, after discharging the gun at a flock, to gather up some of each, and many an old Black-breast has been inveigled up to the decoys within gunshot by being in company with its less suspicious companions.

While the Knot (*T. canutus*) mingles freely with the Black-bellied Plover here, as elsewhere, those of each kind composing one flock seem to keep a little apart. Often when alighting the Knots will be all on one side just a little distance away by themselves, and the Black-bellied Plovers by themselves.

In the autumn I have occasionally seen a flock composed of American Golden Plover (*C. dominicus*) and Black-bellied Plover. One flock I have in mind was composed of fifteen of each of these birds. They remained together on Nantucket Island for a week or more, feeding on the flats together and then coming to the same field when driven off by the incoming tide. On Nantucket Island some thirty-five or forty years ago the Black-bellied Plover frequented the uplands, there being but little marsh land adapted to them; to such uplands they became much attached. Mingled with them would be Turnstones (*Arenaria interpres*), Ringneck Plover (*Ægialitis semipalmata*), and Peeps, all congregating together on the high ground or plains adjacent to the north shore of this island, such flocks often aggregating several hundred.

On these islands (with one exception hereafter described), as also on Cape Cod, they have been noted year by year in lessened numbers until few are seen now as compared with former years. In looking for the cause of this falling off in numbers I am not wholly in accord with the statement which I have frequently heard expressed, that it is owing to the numbers killed during their migration north and south along this coast. The aggregate number of these birds killed in New England for many years past is not in my judgment sufficient to have been alone the cause of such a perceptible difference. I lean to the view that for a considerable number of years past they have been sufficiently harassed on their arrival and during their sojourn to have caused them to forsake such places, and they pass by, without stopping at those localities

where they formerly have been so incessantly pursued. I am also strongly of the opinion that many of them, having a number of times previously made this same journey, recognize such localities as places to be avoided and consequently pass on. In passing over such former resting places, of late years no responsive note of invitation is heard in answer to passing flocks, for all is silent. I am informed on what I consider reliable authority that about twelve years ago large numbers of the Black-bellied Plover and also of the Knot, or Redbreast (*Tringa canutus*), were noted from the 20th of May to the 1st of June on the Magdalen Islands. When tired at sea they will alight on masses of floating seaweed, and also on the ocean where they sit buoyantly, swimming with ease, experiencing no difficulty in taking wing. I judge they have never been very abundant in America, being probably outnumbered many times by the American Golden Plover (*C. dominicus*) and the Knot (*Tringa canutus*).

It has occurred to me that possibly they may have in part changed their habitat and lines of migration to the Eastern Hemisphere although I am not in possession of any facts to substantiate such a theory. It is, however, a fact that fewer of them visit us now than formerly, although during the spring of 1890 quite a remarkable change in the abundance of these birds was noticed in the neighborhood of the island of Tuckernuck, Massachusetts; from a flock of about twenty-five birds which served as the nucleus they continued to increase until six to eight hundred had collected, the average number in the spring for the fifteen years previous being two to three hundred birds. The spring of 1891 showed no such corresponding result, for the number again decreased without any apparent reason to the average of former years. During their stay in the above locality they frequented the upland on the south side of the island, also Smith's Island (a sand spit) and the extensive sand flats bare during low water, following the inside line of the beach when flying, and generally being in pairs or a few together.

On their return from the north the first of the old birds begin to appear about the 25th of July, from which date to the 20th of August is the height of their abundance. The young birds come, a few scattering ones, about the first of September, rarely before, and they often remain until the latter part of November, or until snow flies. The earliest dates on which I have

heard of the Black-bellied Plover appearing in the spring were May 6, 8, and 12. They are most abundant about the 20th of May and for a few days after, according to weather conditions; by the end of the first week in June they have all departed north. In the spring, when migrating north, they seem to appear on warm pleasant days when the wind is fair. Head winds are likely to arrest their flight until favorable conditions again prevail.

From notes taken by a friend near Port Royal, South Carolina, I gather that some birds pass north from the last week in April to the middle of May, when the movement ceases; on their return from the north they are seen at the above place from the middle of August until the end of October going south, but they never have been what might be called numerous at either season, according to his experience.

I have heard of but one instance when these birds have been taken during the winter in New England. Mr. S. Hall Barrett of Malden, Mass., shot three in December, 1872, at Gravel Island, Monomoy, Cape Cod. They were all black-breasted birds with whitish heads. It was thought at the time that they were spending the winter in this locality, as they had been seen a number of times previous to their being killed. This gentleman has also shot the Red-backed Sandpiper (*Tringa alpina pacifica*) in March in New England.

In migrating south in the autumn the Black-bellied Plovers pass inland through New England to a greater or less extent. I have in mind an instance when I shot nine about the end of October, 1865, at Missisquoi Bay, Lake Champlain, in northern Vermont, near the boundary line of Canada. The weather was cold, and there was a fall of snow during the first week in November. I also saw others. The water in the lake at this time was quite low and there were considerable sandy margins and points exposed suitable for the birds' requirements. I learned, on inquiry, that, when this low stage of water prevailed in the lake, many of the water birds were not uncommon visitants at this season. At the same time that I shot the nine Black-bellied Plover above mentioned I also obtained Willets (*Symphemia semipalmata*), Greater Yellowlegs (*Totanus melanoleucus*), and Peeps.

The Black-bellied Plover fly lower on migration, I think, than do the American Golden Plover, and the flocks string out more, a customary mode of flight being in lines; they also fly like Ducks and Geese at such times. They are apt to fly in lines also when coming from the sand flats to and over the marshes.

I have noticed in the autumn that the young birds generally appear in pairs or singly. I never have observed more than a few together, and they are seemingly rather solitary at this season. They also show a preference for the sandy shores and margins of ponds near the ocean, often frequenting the crest of the beach. As a rule they like to be where the sand is wet. They roost on the dry crest of the beaches and on shoals.

When on the ground they usually run very fast for four or five yards, then stop, elevate the head, and look around. They strike at the object they are going to pick up and eat with a very quick motion. In the spring when passing from their feeding grounds on the sand flats and over the marshes they fly low and swiftly, apparently always on the alert, often turning on their sides so as to show the whole of the breast. It is customary for them to approach the marshes from the leeward side. It is not an uncommon occurrence for them to remain on the marshes during low water, instead of going to the flats, which indicates that they obtain considerable of their food in such places.

They make two notes, one a call which is very clear and far-reaching, of several notes with the accent on the second one, and plaintive and mellow; the other is low, and is uttered when they feel easy and contented. It is customary for them to remain silent when a number are standing together. They will not always respond to the call-whistle of the sportsman, or come to the decoys, even if he be well concealed; and even when leading up to the decoys, they do not come in closely flying flocks, but are much scattered and strung out in line, so that while some may be near enough to shoot, there will be others out of range. The reason is the older birds are more wary and suspicious, the adults, as far as my experience shows, being invariably shy. One must lie close and have all the immediate surroundings perfectly natural about the place of concealment in order to get them up to the decoys; and after many unsuccessful attempts to capture them one becomes imbued with the fact that the old birds,

are well calculated, under ordinary circumstances, to avoid danger; they succumb only to those sportsmen who have served a long apprenticeship, and who have acquired a knowledge of their habits.

There is something very aristocratic in the bearing of the adult birds as you watch them standing on the marsh with their heads erect, their black and white plumage strikingly defined, and their large, dark, liquid eyes ever on the alert for danger. With the yellowish green marsh grass for a background, they make a most interesting study in black and white, which, coupled with that clear, penetrating note of alarm when danger is discovered, cannot fail to impress one. I have known the old birds in the spring fairly to scream with terror on suddenly perceiving my close proximity as I arose from my sunken hogshead to shoot at them.

To my old friend Mr. Augustus Denton I am indebted for a considerable share of the following notes, given me in 1877, which are for Cape Cod, Massachusetts, unless otherwise stated. I consider them especially serviceable in giving a very good idea of the spring migration of the Black-bellied Plover northward, as well as indicating their great regularity of movement.

1842, May 24, 25. — A great many birds having collected on Tuckernuck Island, Mass., three men shot one hundred and twenty on the former, and one hundred and fifty on the latter, date. These were noted records even in those days.

1843. — A great many birds on Tuckernuck Island in the spring; a great many were killed.

1858, May 28. — First birds shot.

1858, June 8. — Last birds shot. Aug. 6, shot a few birds.

1859 and 1860. — Practically the same as 1858 without August date.

1861, May 27. — First birds shot. None killed in June. Shot five between Oct. 1 and 27 at Marblehead Neck, Mass.

1862. — Very few birds.

1863, May 25. — First birds shot; good shooting until June 6.

1864, May 28. — First birds shot; good shooting until June 8. A few birds killed in August.

1865, May 26. — First birds shot; abundant until June 5. A fair amount of birds in August; shot 30 at Wellfleet, Cape Cod.

1866. — Only a few scattering birds this spring. Shot one Sept. 29 at Rockport, Mass.

1867, May 27. — First birds shot; most numerous between the 29th and 31st; good shooting until June 7.

1868, May 23. — First birds shot; numerous from the 27th to 30th, lasting until June 6.

1869, May 27. — First birds shot; birds very scarce. A few birds in August.

1870. — Law prohibiting spring shooting.

1871, May 17. — First birds shot, the earliest date I have ever shot these birds; abundant until June 5. Law prohibiting spring shooting repealed. Quite a number of birds in August.

1872, May 25. — First birds shot; continuous good shooting until June 8.

1873, May 19. — First birds shot; most numerous on 31st; last birds shot June 7.

1874, May 17. — First birds shot; best shooting May 29; no birds in June.

1875, May 14. — First birds shot; best shooting on 29th; last birds shot June 5. Sept. 24 shot six on Muskeget Island. Oct. 1, shot 24 young birds. Last bird killed on Cape Cod Oct. 20. Nov. 5, shot one on Nantucket Island.

1876, May 20. — First birds shot; best shooting on the 26th. Very few birds in June. From Oct. 5 to 21 shot a good many young birds.

1877, May 20. — First birds shot; best shooting May 28; birds about all gone June 1. Aug. 25 shot one bird on Nantucket Island; Sept. 26, shot three, Nantucket Island.

1878, Oct. 14. — Shot one, Nantucket.

1879, Aug. 28. — Shot six on Nantucket Island.

1880, Sept. 11. — Shot one, Nantucket.

1881, Aug. 11. — Saw seven, Nantucket.

1882, September 21. — Shot one, Nantucket; Sept. 27, shot one.

1884, Aug. 25. — Shot six, Nantucket.

1886, Sept. 1 and 5. — Shot one on each date, Nantucket.

1888, Aug. 19. — Shot one, Nantucket.

1889, Sept. 22. — Shot one, Nantucket.

1890, May. — More birds than for many years, in neighborhood of Tuckernuck Island. June 3, saw a flock of eighteen on Nantucket Island.

1891, May 27. — Shot four old birds on Nantucket; heard of several flocks seen. July 18, one bird seen, Essex, Mass., flying from the east. Aug. 16, saw four; shot one whose breast was nearly all black. Sept. 12, saw two birds; Sept. 13, saw one, Nantucket. Sept. 26, saw two young birds, Nantucket. Sept. 29, saw one young bird, Nantucket.